



989 WEST VALLEY ROAD
WAYNE, PENNSYLVANIA 19087
215-687-9510

404774

ORIGINAL
(Red)

CONFIDENTIAL

June 27, 1991
R-585-4-1-5
68-01-7346

Mr. Gregory Ham
U.S. Environmental Protection Agency
841 Chestnut Building
Ninth and Chestnut Streets
Philadelphia, Pennsylvania 19107

Subject: Final Report
TDD No. F3-9008-01
EPA DSN PA-2797
Facility ID No. PAD987285277
Linfield Industrial Park
Linfield, Montgomery County, Pennsylvania

Dear Mr. Ham:

Submitted herewith is the final Preliminary Assessment report for the subject site. The contents of the report are based on an evaluation of information contained in the site files provided, on the results of a review of regional and local hydrogeologic literature, and on data collected during a field evaluation performed in February 1991. Based on this review, the following is offered for EPA's consideration:

- It is recommended that further action under CERCLA be pursued. A Hazard Ranking System (HRS) screening score of (b) (5) was obtained for the site. This score is based on available information and is reflective of the large number of sources identified at the site, an observed release to surface waters from the site, and the population within the study area that relies on groundwater for its drinking water.

The Linfield Industrial Park site is located south of Linfield - Trappe Road, east of the Schuylkill River bridge, in Montgomery County, Pennsylvania. The residential town of Linfield is adjacent to and northeast of the site; state game lands are east of and adjacent to the site.

The abandoned 125-acre industrial park is situated on mostly flat land on the eastern banks of the Schuylkill River. The western and southern portions of the site have a 5- to 10-percent slope toward the Schuylkill River. Access to the site is restricted by a fence and a main gate; however, the fence does not completely surround the site. The site is composed of approximately six separate divisions: the main gate and parking area, the distillery area, the building no. 2 area, the warehouse area, the concrete pads area, and the former tank farm area.



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Mr. Gregory Ham
U.S. Environmental Protection Agency
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Linfield Industrial Park Final Preliminary Assessment Report

The site has been inactive since 1986. The current owner, 888 Warehousing, Incorporated, is attempting to find a lessee or buyer for the property.

From an unknown date until 1986, building no. 2 was used for the repackaging and distribution of ethylene glycol (antifreeze) and ammonia-based cleaners. These materials were transported to the facility by rail car and tanker trucks, transferred to smaller containers, and distributed off site for sale. Evidence at the site indicates that one-gallon plastic containers may have been manufactured on site for transport of the antifreeze and cleaners.

Beginning in approximately 1945, the facility operated as a United-States-Government-bonded whiskey warehousing operation. The storage and distribution of whiskey comprised the main operation. Above-ground storage tanks provided the initial storage. Whiskey was then transferred to wooden kegs for aging in the warehouses. After the aging process, the whiskey was bottled, labeled, and shipped from the site. It is not known how long this operation existed at the site.

For an undetermined period (probably beginning in the early 1800s), the facility was operated as a distillery of whiskey products. Storage, aging, and distribution of the whiskey products occurred at the site.

Inspections conducted by the Pennsylvania Department of Environmental Resources (PA DER) in 1972, 1973, 1975, 1983, 1984, and 1985 revealed unauthorized discharges of industrial wastewater to the Schuylkill River. The industrial wastewater consisted of deionizer wastewater, septic tank seepage, trash-compactor oils, bottle-making-room oils, air compressor pit waste oil, and non-contact cooling compressor water. Additionally, the deionizer wastewater backwash and regeneration wastes were discharged after neutralization into a lime pit. The facility was issued two NPDES permits for an outfall to the Schuylkill River. The NPDES discharge point was analyzed and revealed elevated levels of biochemical oxygen demand and ethyl glycol alcohol.

Groundwater and surface water are the sources of potable water for individuals residing in the four-mile-radius area surrounding the Linfield Industrial Park site. The Citizens' Utilities Home Water Company supplies water to a total population of 12,506 people in the study area. The water is obtained from an intake in the Schuylkill River (b) (9)

(b) (9)

(b) (9) The Pottstown Municipal Water Authority supplies water to a total population of 9,536 people in the study area. The water is obtained from an intake located upstream in the Schuylkill River, outside the study area. Approximately 14,452 persons are assumed to obtain their water from private domestic wells within the study area. (b) (6)

(b) (6)

The Schuylkill River is adjacent to the southern and western boundaries of the site. PA DER lists the Schuylkill River as protected for the maintenance and/or propagation of fish species indigenous to warm water and for the passage, maintenance, and propagation of migratory fishes.

Adjacent to and downstream from the site are palustrine, forested, broad-leaved, deciduous, temporarily non-tidal flooded wetlands with three linear miles of frontage.

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On February 19, 1991, NUS FIT 3 conducted a preliminary assessment of the Linfield Industrial Park. During the inspection, NUS FIT 3 observed several areas of concern: 21 above-ground storage tanks, 2 underground storage tanks that contained unknown oils, 75 to 100 fifty-five-gallon drums (many drums were empty, although at least 25 drums were not; 1 tar-like spill was observed), 2 power transformers, 1 gas pump, 5 tanker trucks (at least 1 truck was still hooked to the building via a discharge line), and 20 abandoned buildings. Based on these observations, EPA Emergency Response was contacted and is currently attempting to gain access.

If you have any further questions, please contact me.

Respectfully submitted,

(b) (4)

Project Manager

ER/law

Reviewed by,

(b) (4)

Section Supervisor

Approved by,

(b) (4)

Regional Manager, FIT 3

Prepared by: (b) (4)
 Reviewed and Approved by: (b) (4)
 Date: 4/5/91

TDD No.: F3-908-01
 Site Name: Linfield Industrial Park
 Date: 4/4/91

Source Descriptions: (list sources on site by name and provide most complete estimate of quantity for each)

- 1) Underground Storage Tanks: - Two, underground tanks with an unknown capacity - estimate 10,000 gal. Containing an unknown quantity of an oil like liquid
- 2) Aboveground tanks associated with the distillery building: - 3 metal, cylinder tanks with the approximate dimensions 6' x 25' or 5284 gal
 - 2 metal cylinder tanks with the approximate dimensions 4' x 10' or 939 gal
 - the contents of the tanks are unknown
- 3) Whiskey Vats: - 8, wooden, above ground, open topped vats with the approximate dimensions 10' x 20' or 11,700 gallons
 - the vats appeared to be empty

continued 1b

Waste Characteristics (WC) Calculations: (If single source, find WC associated with source and quantity using table 1a. If multiple sources, list by source name and provide WQ, from table 1a, for each source. Total WQ scores for sources and convert to WC using table 1b.)

Source	WQ
1) Underground storage tanks, 40,000 gallons	(b) (5)
2) Aboveground tanks associated with distillery, 17730 gallons	
3) Whiskey Vats, 93600 gallons	
4) Transformer in distillery area, 598 gallons	
5) Drums in distillery area, 10 drums	
6) Fuel Tank in distillery area, 10,000 gallons	
7) Drums associated with storage shed, 10 drums	
8) Above ground tank south of distillery, 264,200 gallons	
9) Tanker Truck in parking area, 8,000 gallons	
10) Tanker trucks associated with building #2, 30000 gallons	
11) Above ground tanks associated with building #2, 90,420 gallons	
12) Above ground tanks associated with warehouses, 945,125 gallons	

WC =

Continued page 1b

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Prepared by: **(b) (4)**
 Reviewed and Approved by: **(b) (4)**
 Date: 7/1/91

TDD No.: F3-9008-01
 Site Name: Lynfield Industrial Park
 Date: 4/4/91 ORIGINAL

Source Descriptions: (list sources on site by name and provide most complete estimate of quantity for each)

- 4) Transformer in distillery area: - 1 electrical transformer, filled with liquid with evidence of spillage and stained soil.
 - approximate dimensions 4'x5'x4' or 596 gallons
- 5) Drums in distillery area: - 10 55 gallon drums, several containing liquids, two marked "waste oil"
 total volume 550 gallons
- 6) Fuel tank in distillery area: - at least one underground, gasoline tank, condition and contents unknown
 - estimated volume of tank 10,000 gallons continued

Waste Characteristics (WC) Calculations: (If single source, find WC associated with source and quantity using table 1a. If multiple sources, list by source name and provide WQ, from table 1a, for each source. Total WQ scores for sources and convert to WC using table 1b.)

Source	WQ
13) Drums on north western most concrete pad, 4 drums	(b) (5)
14) Drums on south eastern most concrete pad, 8 drums	
15) Herbicide containers in shed, 5 drums	
16) Transformer south of concrete pads, 20 gallon	
17) Ethylene glycol spill, unknown	
18) Blending room spill, unknown	
19) Lime p.t., unknown	
20) Catch basin, unknown	

WC =

(b) (5)

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Prepared by: (b) (4)
 Reviewed and Approved by: (b) (4)
 Date: 9/17/61

TDD No.: F3-500E-01
 Site Name: L. F. Old Industrial Park
 Date: 4/4/61

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ORIGINAL
 (Pkt)

Source Descriptions: (list sources on site by name and provide most complete estimate of quantity for each)

- 7) Drums associated with storage shed : - 10, 55 gallon drums located inside and outside of a cinderblock storage shed. The contents of the drums are unknown, however, some were marked varnishes & oils.
 Total volume 55 gallons
- 8) Above ground tank south of distillery : - 1 metal cylinder tank with the approximate dimensions 30' x 50' or 264,231 gallons. The contents of the tank is not known
- 9) Tanker truck in parking area : - 1 tanker truck with unknown contents
 - approximate capacity 6000 gallons.

Continued 1d

Waste Characteristics (WC) Calculations: (If single source, find WC associated with source and quantity using table 1a. If multiple sources, list by source name and provide WQ, from table 1a, for each source. Total WQ scores for sources and convert to WC using table 1b.)

WC =

CONFIDENTIAL

Prepared by: **(b) (4)**
 Reviewed and Approved by: **(b) (4)**
 Date: 6/9/91

TDD No.: F3-9008-01
 Site Name: Linfield Industrial Park
 Date: 4/4/91

Source Descriptions: (list sources on site by name and provide most complete estimate of quantity for each)	
10) Tanker trucks associated with building #2	4 tanker trucks with unknown contents approximate capacity of each is 8000 gallons
11) Above ground tanks associated with building #2	10 metal cylinder tanks with unknown contents: 6' x 40' or 8455 gal each 1 metal cylinder tank with unknown contents: 5' x 30' or 4403 gallons 1 metal cylinder tank with unknown contents: 5' x 30' or 4403 gallons
12) Above ground tanks associated with warehouses	2 metal cylinder tanks with unknown contents: 40' x 50' or 469744 gallons 1 metal cylinder tank with unknown contents: 8' x 15' or 5637 gallons

continued 1c

Waste Characteristics (WC) Calculations: (If single source, find WC associated with source and quantity using table 1a. If multiple sources, list by source name and provide WQ, from table 1a, for each source. Total WQ scores for sources and convert to WC using table 1b.)

WC =

Prepared by: (b) (4)

Reviewed and Approved by: (b) (4)

Date: 4/14/61

TDD No.: E3-9008-01

Site Name: Winfield Industrial Park

Date: 4/14/61

1e

ORIGINAL

Source Descriptions: (list sources on site by name and provide most complete estimate of quantity for each).

13) Drums on north westernmost concrete pad: 4, 55 gal drums containing an unknown liquid
total volume 220 gallons

14) Drums on south easternmost concrete pad: 8, 55 gallon drums, some containing unknown liquids, one incinerated oil residue to ground
total volume 440 gallons

15) Herbicide containers in shed: 5, 5 gallon metal containers with unknown contents marked herbicide
total volume 25 gallons continued 1f

Waste Characteristics (WC) Calculations: (If single source, find WC associated with source and quantity using table 1a. If multiple sources, list by source name and provide WQ, from table 1a, for each source. Total WQ scores for sources and convert to WC using table 1b.)

WC =

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Prepared by: (b) (4)
 Reviewed and Approved by: (b) (4)
 Date: 4/6/91

TDD No.: F3-G005-01
 Site Name: Linfield Industrial Park
 Date: 4/4/91
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 ORIGINAL

Source Descriptions: (list sources on site by name and provide most complete estimate of quantity for each)

- 16) Transformer south of : 1.20 gallon electrical transformer and associated stained concrete pads : soils.
 - 17) Ethylene glycol spill : An unknown quantity of ethylene glycol was released from a storage tank
 - 18) Blending room spill: An unknown quantity of an unknown waste material was released to soils within the blending room.
- Continued 15

Waste Characteristics (WC) Calculations: (If single source, find WC associated with source and quantity using table 1a. If multiple sources, list by source name and provide WQ, from table 1a, for each source. Total WQ scores for sources and convert to WC using table 1b.)

WC =

CONFIDENTIAL

Prepared by:

(b) (4)

Reviewed and Approved by:

(b) (4)

Date:

4/6/91

TDD No.:

F3-9008-01

Site Name:

Linfield Industrial Park

Date:

4/4/91

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ORIGINAL

Source Descriptions: (list sources on site by name and provide most complete estimate of quantity for each)

1a) lime pit

A lime pit of unknown size was reportedly utilized to dispose of waste waters generated at the air ty.

20) catch basin

A catch basin of unknown size was reportedly utilized at the site for the temporary storage of wastewaters.

end

Waste Characteristics (WC) Calculations: (If single source, find WC associated with source and quantity using table 1a. If multiple sources, list by source name and provide WQ, from table 1a, for each source. Total WQ scores for sources and convert to WC using table 1b.)

WC =

(b) (5)

Prepared by: **(b) (4)**
 Reviewed and Approved by: **(b) (4)**
 Date: 7/1/91

TDD No.: F3-9008-01
 Site Name: Winfield Industrial Park
 Date: 4/1/91 2

PA TABLE 1: WASTE CHARACTERISTICS (WC) SCORES

PA Table 1a: WC Scores for Single-Source Sites and Formulas for Multiple-Source Sites

TIER	SOURCE TYPE	SINGLE-SOURCE SITES (assigned WC scores)			MULTIPLE-SOURCE SITES
		WC = 18	WC = 32	WC = 100	
CONSTITUENT	N/A	≤ 100 lbs	> 100 to 10,000 lbs	> 10,000 lbs	lbs ÷ 1
WASTE STREAM	N/A	≤ 500,000 lbs	> 500,000 to 50 million lbs	> 50 million lbs	lbs ÷ 5,000
VOLUME	Landfill	≤ 6.75 million ft ³ ≤ 250,000 yd ³	> 6.75 million ft ³ to 675 million ft ³ > 250,000 to 25 million yd ³	> 675 million ft ³ > 25 million yd ³	ft ³ ÷ 67,500 yd ³ ÷ 2,500
	Surface impoundment	≤ 6,750 ft ³ ≤ 250 yd ³	> 6,750 ft ³ to 675,000 ft ³ > 250 to 25,000 yd ³	> 675,000 ft ³ > 25,000 yd ³	ft ³ ÷ 67.5 yd ³ ÷ 2.5
	Drums	≤ 1,000 drums	> 1,000 to 100,000 drums	> 100,000 drums	drums ÷ 10
	Tanks and non-drums containers	≤ 50,000 gallons	> 50,000 to 5 million gallons	> 5 million gallons	gallons ÷ 500
	Contaminated soil	≤ 6.75 million ft ³ ≤ 250,000 yd ³	> 6.75 million ft ³ to 675 million ft ³ > 250,000 to 25 million yd ³	> 675 million ft ³ > 25 million yd ³	ft ³ ÷ 67,500 yd ³ ÷ 2,500
	Pile	≤ 6,750 ft ³ ≤ 250 yd ³	> 6,750 ft ³ to 675,000 ft ³ > 250 to 25,000 yd ³	> 675,000 ft ³ > 25,000 yd ³	ft ³ ÷ 67.5 yd ³ ÷ 2.5
AREA	Landfill	≤ 340,000 ft ² ≤ 7.8 acres	> 340,000 to 34 million ft ² > 7.8 to 780 acres	> 34 million ft ² > 780 acres	ft ² ÷ 3,400 acres ÷ 0.078
	Surface impoundment	≤ 1,300 ft ² ≤ 0.029 acres	> 1,300 to 130,000 ft ² > 0.029 to 2.9 acres	> 130,000 ft ² > 2.9 acres	ft ² ÷ 13 acres ÷ 0.00029
	Contaminated soil	≤ 3.4 million ft ² ≤ 78 acres	> 3.4 million to 340 million ft ² > 78 to 7,800 acres	> 340 million ft ² > 7,800 acres	ft ² ÷ 34,000 acres ÷ 0.78
	Pile*	≤ 1,300 ft ² ≤ 0.029 acres	> 1,300 to 130,000 ft ² > 0.029 to 2.9 acres	> 130,000 ft ² > 2.9 acres	ft ² ÷ 13 acres ÷ 0.00029
	Land treatment	≤ 27,000 ft ² ≤ 0.62 acres	> 27,000 to 2.7 million ft ² > 0.62 to 62 acres	> 2.7 million ft ² > 62 acres	ft ² ÷ 270 acres ÷ 0.0062

1 ton = 2,000 lbs = 1 yd³ = 4 drums = 200 gallons

* Use area of land surface under pile, not surface area of pile.

PA Table 1b: WC scores for Multiple-Source Sites

WQ Total	WC Score
> 0 to 100	18
> 100 to 10,000	32
> 10,000	100

Prepared by: (b) (4)
 Reviewed and Approved by: (b) (4)
 Date: 7/1/91

TDD No.: F3-5008-91
 Site Name: Linfield Industrial Park
 Date: 4/4/91

ORIGINAL

GROUNDWATER PATHWAY SCORE SHEET

Pathway Characteristics	
Are there monitoring wells on site?	Yes _____ No <u>X</u>
Is the site located in karst terrain?	Yes _____ No <u>X</u>
Depth to aquifer:	<u>540 ft</u> ft
Distance to the nearest drinking-water well:	<u>200 ft</u> ft

LIKELIHOOD OF RELEASE

	A Suspected Release (550)	B No Suspected Release (500 or 340)	
1. SUSPECTED RELEASE: If you suspect a release to groundwater, assign a score of 550, and use only column A for this pathway.			1. Score suspected release only if data are available and discussed in PA report, or present rationale on page 15 of this package.
2. NO SUSPECTED RELEASE: If you do not suspect a release to groundwater, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Use only column B for this pathway.		(b) (5)	
LR =			

TARGETS

3. PRIMARY TARGET POPULATION: Determine the number of people served by drinking water from wells that you suspect have been exposed to hazardous substances from the site. _____ people x 10 =			3. Score only if column A is scored under likelihood of release.
4. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water from wells that you do not suspect have been exposed to hazardous substances from the site and assign the total population score from PA Table 2. Are any wells part of a blended system? Yes <u>X</u> No _____		(b) (5)	4. Are apportionment data available in PA report <u>Yes</u> if yes, score only that population associated with potentially affected well(s).
5. NEAREST WELL: If you have identified any Primary Targets for groundwater, assign a score of 50; otherwise, assign the highest Nearest Well score from PA Table 2. If no drinking-water wells exist within 4 miles, assign a score of 0.	(50, 20, 10, 5, 3, 2 or 0)	(20, 10, 5, 3, 2 or 0) (b) (5)	
6. WELLHEAD PROTECTION AREA (WHPA): Assign a score of 20 if any portion of a designated WHPA is within 1/4 mile of the site; assign 5 if from 1/4 to 4 miles.	(20, 5, or 0)	(20, 5, or 0) (b) (5)	
7. RESOURCES: A score of 5 is assigned.	(5) 5	(5) 5	
(sum target values) T =		(b) (5)	

WASTE CHARACTERISTICS

8. A. If you have identified any Primary Targets for groundwater, assign the waste characteristics score calculated, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	(100 or 32)		
B. If you have NOT identified any Primary Targets for groundwater, assign the waste characteristics score calculated.	(100, 32, or 18)	(100, 32, or 18) (b) (5)	
WC =		(b) (5)	

(subject to maximum of 100)

GROUNDWATER PATHWAY SCORE:

$$\frac{LR \times T \times WC}{82,500}$$

100

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Prepared by: (b) (4)
 Reviewed and Approved by: (b) (4)
 Date: 8/5/91

TL No. FB-9008-01
 Site Name: Linfield Industrial Park
 Date: 4/4/91

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PA TABLE 2: VALUES FOR SECONDARY GROUNDWATER TARGET POPULATIONS

PA Table 2a: Non-Karst Aquifers

Distance from Site	Actual Population	Nearest Well (choose highest)	Population Served by Wells Within Distance Category										Population Values
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	
0 to 1/4 mile	67	(b) (5)											
> 1/4 to 1/2 mile	3670												
> 1/2 to 1 mile	1208												
> 1 to 2 miles	3153												
> 2 to 3 miles	9845												
> 3 to 4 miles	5587												
Nearest Well =													

PA Table 2b: Karst Aquifers

Distance from Site	Actual Population	Nearest Well (use 20 for karst)	Population Served by Wells Within Distance Category										Population Values
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	
0 to 1/4 mile		20	1	2	5	16	52	163	521	1,633	5,214	16,325	
> 1/4 to 1/2 mile		20	1	1	3	10	32	101	323	1,012	3,233	10,121	
> 1/2 to 1 mile		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 1 to 2 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 2 to 3 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 3 to 4 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
Nearest Well =			(sum values) Score =										

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Prepared by: (b) (4)
Reviewed and Approved by: (b) (4)
Date: 4/15/94

TDD No.: F3-9098-01
Site Name: Winfield Industrial Park
Date: 4/4/94

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SURFACE WATER PATHWAY LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORE SHEET

Pathway Characteristics	
Is there definite drainage/discharge from source area(s)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Distance to surface water:	<u>adjacent</u> feet
Flood Frequency:	<u>100</u> years
What is the downstream distance to the nearest drinking-water intake?	<u>< 25</u> miles
nearest fishery?	<u>adjacent</u> miles
nearest sensitive environment?	_____ miles

LIKELIHOOD OF RELEASE

1. SUSPECTED RELEASE: If you suspect a release to surface water, assign a score of 550 and use only column A for this pathway.

2. NO SUSPECTED RELEASE: If you do not suspect a release to surface water and the distance to surface water is 2,500 feet or less, assign a score of 500; otherwise, assign a score from the table below (or see note 2). Use only column B for this pathway.

Flood Plain	Score
Site in annual or 10-yr flood plain	500
Site in 100-yr flood plain	400
Site in 500-yr flood plain	300
Site outside 500-yr flood plain	100

A Suspected Release (550)	B No Suspected Release (500, 400, 300, or 100)
(b) (5)	
	(500, 400, 300, or 100)
(550)	(500, 400, 300, or 100)

1. Score suspected release only if data are available or direct deposition is noted and discussed in PA report, or present rationale on page 15 of this package.

2. if < 2,500 ft. = 500
if within 100 yr. = 400
if outside 100 yr. and < 1.5 miles = 300
if outside 100 yr and > 1.5 miles = 100.

LR =

DRINKING WATER THREAT TARGETS

3. Determine the water-body types, flows (if applicable), and number of people served by all drinking-water intakes within the 15-mile target distance limit. If there are no drinking-water intakes within the target distance limit, assign a total Targets score of 5 at the bottom of this page (Resources only).

Intake Name	Water Body Type	Flow	People Served
(b) (9)		fs	3126
(b) (9)		fs	10,000
(b) (9)		fs	24,722

4. PRIMARY TARGET POPULATION: If you suspect any drinking-water intake listed above has been exposed to hazardous substances from the site, list the intake name(s) and calculate the factor score based on the number of people served.

People X 10 =

5. SECONDARY TARGET POPULATION: Determine the Secondary Target Population score from PA Table 3 based on the populations using drinking water from intakes that you do NOT suspect have been exposed to hazardous substances from the site.

Are any intakes part of a blended system? Yes ☒ No ☐

6. NEAREST INTAKE: If you have identified any Primary Targets for the drinking water threat (Factor 4), assign a score of 50; otherwise, assign the Nearest Intake score from PA Table 3. If no drinking-water intake exists within the 15-mile target distance limit, assign a score of zero.

7. RESOURCES: A score of 5 is assigned.

(50, 20, 10, 2, 1, or 0)	(20, 10, 2, 1, or 0)
(5)	(5)
5	5

4. Score only if column A is scored under likelihood of release.

5. Are apportionment data available in PA report yes? If yes, score only that population associated with potentially affected intakes.

Prepared by

(b) (4)

(b) (4)

Reviewed and Approved by

Date

8/5/91

TDD No

F3-9008-01

Site Name

Linderoth Industrial Park

Date

8/14/91

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PA TABLE 3: VALUES FOR SECONDARY SURFACE WATER TARGET POPULATIONS

Surface Water Body Flow Characteristics (see PA Table 4)	Actual Population	Nearest Intake (choose highest)	Population Served by Intakes Within Flow Category											Population Value
			1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	
< 10 cfs		20	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,246	
10 to 100 cfs		2	1	1	2	5	16	52	163	521	1,633	5,214	16,325	
> 100 to 1,000 cfs		1	0	0	1	1	2	5	16	52	163	521	1,633	
> 1,000 to 10,000 cfs	65427	0	0	0	0	0	1	1	2	5	16	52	163	(b) (5)
> 10,000 cfs or Great Lakes		0	0	0	0	0	0	0	1	1	2	5	16	
3-Mile Mixing Zone		10	1	3	8	26	82	261	816	2,607	8,162	26,068	81,663	
Nearest Intake =		0	(sum values) Score =											(b) (5)

PA TABLE 4: SURFACE WATER TYPE / FLOW CHARACTERISTICS
WITH DILUTION WEIGHTS FOR SECONDARY SURFACE WATER SENSITIVE ENVIRONMENT

Type of Surface Water Body		Dilution Weight
Water Body Type	OR Flow Characteristics	
minimal stream	flow less than 10 cfs	1
small to moderate stream	flow 10 to 100 cfs	0.1
moderate to large stream	flow greater than 100 to 1,000 cfs	N/A
large stream to river	flow greater than 1,000 to 10,000 cfs	N/A
large river	flow greater than 10,000 cfs	N/A
3-mile mixing zone of quiet-flowing streams or rivers	flow 10 cfs or greater	N/A
coastal tidal waters (harbors) sounds, bays, etc.), oceans, or Great Lakes	N/A	N/A

CONFIDENTIAL

Prepared by: (b) (4)
 Reviewed and Approved by: (b) (4)
 Date: 4/14/91

TDD No.: F3-5008-01
 Site Name: Linfield Industrial Park
 Date: 4/14/91

ORIGINAL
 (Rev)

**SURFACE WATER PATHWAY (continued)
 HUMAN FOOD CHAIN THREAT SCORE SHEET**

LIKELIHOOD OF RELEASE

	A Suspected Release (550)	B No Suspected Release (500, 400, 300, or 100)
Enter the Surface Water Likelihood of Release score. LR =	(b) (5)	

HUMAN FOOD CHAIN THREAT TARGETS

8. Determine the water-body types and flows (if applicable) for all fisheries within the 15-mile target distance limit. If there are no fisheries within the target distance limit, assign a Targets score of 0 at the bottom of this page.

Fishery Name	Water Body Type	Flow
Schuylkill River	River	1688 cfs
		cfs
		cfs
		cfs
		cfs

9. PRIMARY FISHERIES: If you suspect any fishery listed above has been exposed to hazardous substances from the site, assign a score of 300 and do not evaluate Factor 10. List the Primary Fisheries:

Schuylkill River

10. SECONDARY FISHERIES: If you have not identified any Primary Fisheries, assign a Secondary Fisheries score from the table below using the LOWEST flow at any fishery within the 15-mile target distance limit.

Lowest Flow	Secondary Fisheries Score
< 10 cfs	210
10 to 100 cfs	30
> 100 cfs, coastal tidal waters, oceans, or Great Lakes	12

8. Fisheries are waters that support aquatic life taken for human consumption (sport or commercial). Boundaries are determined by a change in flow rate.

9. Score only if column A is scored under Likelihood of Release and fishery is in proximity to release.

T =

(300, 210, 30, 12, or 0)	(210, 30, 12, or 0)
(b) (5)	

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8

Prepared by: (b) (4)
 Reviewed and Approved by: (b) (4)
 Date: 4/14/91

TDD No.: F3-9005-01
 Site Name: Lunkens Industrial Park
 Date: 4/14/91

SURFACE WATER PATHWAY ENVIRONMENTAL THREAT SCORE SHEET

LIKELIHOOD OF RELEASE

	A Suspected Release (550)	B No Suspected Release (500, 400, 300, or 100)
Enter the Surface Water Likelihood of Release score. LR =	(b) (5)	

ENVIRONMENTAL THREAT TARGETS

11. Determine the water-body types and flows (if applicable) for all surface water sensitive environments within the 15-mile target distance limit (see PA Tables 4 and 5). If there are no sensitive environments within the 15-mile target distance limit, assign a Targets score of 0 at the bottom of this page.

Environment Name	Water Body Type	Flow
Schuylkill River	River	1885 cfs
		cfs
		cfs
		cfs
		cfs

12. PRIMARY SENSITIVE ENVIRONMENTS: If you suspect any sensitive environment listed above has been exposed to hazardous substances from the site, assign a score of 300 and do not evaluate Factor 13. List the Primary Sensitive Environments:

Schuylkill River

13. SECONDARY SENSITIVE ENVIRONMENTS:

- A. For Secondary Sensitive Environments on surface water bodies with flows of 100 cfs or less, assign scores as follows, and do not evaluate part B of this factor:

Flow	Dilution Weight- (PA Table 4)	Environment Type and Value (PA Tables 5 and 6)	Total
cfs	x	=	
cfs	x	=	
cfs	x	=	
cfs	x	=	
cfs	x	=	

Sum =

- B. If NO Secondary Sensitive Environments are located on surface water bodies with flows of 100 cfs or less, assign a score of 10.

11. Are sensitive environments present within 15 stream miles and identified in PA report? Yes. If yes, list only those in proximity to release or in stream segments with flows ≤ 100 cfs.

12. Score only if column A is scored under likelihood of release and sensitive environment is in proximity to release.

(b) (5)

(10 or 0)

(10 or 0)

T = 300

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(Red) 9

Prepared by (b) (4)
Reviewed and Approved by: (b) (4)
Date: 4/1

TDD No. F3-9008-01
Site Name: White Lake Industrial Park
Date: 4/4/91

PA TABLE 5: SURFACE WATER AND AIR SENSITIVE ENVIRONMENTS VALUES

Sensitive Environment	Assigned Value
Critical habitat for federally designated endangered or threatened species	100
Marine sanctuary	
National park	
Designated federal wilderness area	
Ecologically important areas identified under the Coastal Zone Wilderness Act	
Sensitive areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act	
Critical areas identified under the Clean Lakes Program of the Clean Water Act (subareas in lake or entire small lakes)	
National monument	
National seashore recreation area	
National lakeshore recreation area	
Habitat known to be used by federally designated or proposed endangered or threatened species	75
National preserve	
National or state wildlife refuge	
Unit of Coastal Barrier Resources System	
Federal land designated for the protection of natural ecosystems	
Administratively proposed federal wilderness area	
Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay, or estuary	
Migratory pathways and feeding areas critical for the maintenance of anadromous fish species in a river system	
Terrestrial areas utilized by large or dense aggregations of vertebrate animals (semi-aquatic foragers) for breeding	
National river reach designated as recreational	
Habitat known to be used by state-designated endangered or threatened species	50
Habitat known to be used by a species under review as to its federal endangered or threatened status	
Coastal barrier (partially developed)	
Federally designated scenic or wild river	
State land designated for wildlife or game management	25
State designated scenic or wild river	
State designated natural area	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	
State-designated areas for the protection/maintenance of aquatic life under the Clean Water Act	5
Wetlands	See PA Table 6 (Surface Water Pathway) or PA Table 9 (Air Pathway)

PA Table 6: Surface Water
Wetlands Frontage Values

Total Length of Wetlands	Assigned Value
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

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(Red) 10

Prepared by: (b) (4)
Reviewed and Approved by: (b) (4)
Date: 4/15/91

TDD No.: F3-5008-01
Site Name: Linfield Industrial Park
Date: 4/14/91

**SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY**

		A	B
WASTE CHARACTERISTICS		Suspected Release (100 or 32)	No Suspected Release (100, 32, or 10)
14. A.	If you have identified ANY Primary Targets for surface water, assign the waste characteristics score calculated or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	(b) (5)	
B.	If you have NOT identified any Primary Targets for surface water, assign the waste characteristics score calculated.		
WC =		(b) (5)	

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score	Targets (T) Score	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score LR x T x WC / 82,500
Drinking Water	(b) (5)			(subject to a maximum of 100)
Human Food Chain				
Environmental				

SURFACE WATER PATHWAY SCORE
(Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

(subject to a maximum of 100)

(b) (5)

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 Reviewed and Approved by: _____
 Date: 4/5/91

ORIGINAL
(Red) 11

TDD No.: F3-9005-01
 Site Name: Litchfield Industrial Park
 Date: 4/4/91

SOIL EXPOSURE PATHWAY SCORE SHEET

Pathway Characteristics	
Do any people live on or within 200 feet of areas of suspected contamination?	Yes <u>X</u> No _____
Do any people attend school or day care or within 200 feet of areas of suspected contamination?	Yes _____ No <u>X</u>
Is the facility active? Yes _____ No <u>X</u> If yes, estimate the number of workers: _____	

LIKELIHOOD OF EXPOSURE

	A Suspected Contamination (550)	B No Suspected Contamination
1 SUSPECTED CONTAMINATION: Surficial contamination is assumed. A score of 550 is assigned. LE =	(b) (5)	

RESIDENT POPULATION THREAT TARGETS

2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or day care on or within 200 feet of areas of suspected contamination. 50 People x 10 =	(b) (5)	2. Score only if population is within 200 feet of source or known contamination.										
3. RESIDENT INDIVIDUAL: If you have identified any Resident Population (Factor 2), assign a score of 50; otherwise, assign a score of 0.	(50 or 0) (b) (5)											
4. WORKERS: Assign a score from the following table based on the total number of workers at the facility and nearby facilities with suspected contamination:	(15, 10, 5, or 0) (b) (5)	4. Score only for workers on site and for off-site industries with known contamination.										
<table border="1"> <thead> <tr> <th>Number of Workers</th> <th>Score</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td></tr> <tr><td>1 to 100</td><td>5</td></tr> <tr><td>101 to 1,000</td><td>10</td></tr> <tr><td>> 1,000</td><td>15</td></tr> </tbody> </table>	Number of Workers	Score	0	0	1 to 100	5	101 to 1,000	10	> 1,000	15		
Number of Workers	Score											
0	0											
1 to 100	5											
101 to 1,000	10											
> 1,000	15											
5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Assign a value from PA Table 7 for each terrestrial sensitive environment that is located on an area of suspected contamination:	(b) (5)	5. Score only if area is known to be contaminated or if on site.										
<table border="1"> <thead> <tr> <th>Terrestrial Sensitive Environment Type</th> <th>Value</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	Terrestrial Sensitive Environment Type	Value							(b) (5)			
Terrestrial Sensitive Environment Type	Value											
6. RESOURCES: A score of 5 is assigned.	(5) 5											
(sum target values) T =	(b) (5)											

WASTE CHARACTERISTICS

	A (100, 32, OR 18)	B
7. Assign the waste characteristics score calculated. WC =	(b) (5)	

RESIDENT POPULATION THREAT SCORE:

$$\frac{LE \times T \times WC}{82,500}$$

(subject to a maximum of 100)
 (b) (5)

NEARBY POPULATION THREAT SCORE:

Assign a score of 2

2

SOIL EXPOSURE PATHWAY SCORE:

Resident Population Threat + Nearby Population Threat

(subject to a maximum of 100)
 100

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 Reviewed and Approved by: (b) (4)
 Date: 7/6/61

TDD No.: F3-Sup8-01
 Site Name: Kentfield Industrial Park
 Date: 4/14/61

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PA TABLE 7: SOIL EXPOSURE PATHWAY
 TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

Terrestrial Sensitive Environment	Assigned Value
Terrestrial critical habitat for federally designated endangered or threatened species National park Designated federal wilderness area National monument	100
Terrestrial habitat known to be used by federally designated or proposed threatened or endangered species National preserve (terrestrial) National or state terrestrial wildlife refuge Federal land designated for protection of natural ecosystems Administratively proposed federal wilderness area Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	75
Terrestrial habitat used by state-designated endangered or threatened species Terrestrial habitat used by species under review for federally designated endangered or threatened status	50
State lands designated for wildlife or game management State-designated natural areas Particular areas, relatively small in size, important to maintenance or unique biotic communities	25

Prepared by: (b) (4) (b) (4) CONFIDENTIAL
Reviewed and Approved by: _____
Date: 7/1/91

TDD No.: F3-9006-01
Site Name: Linfield Industrial Park
Date: 7/1/91

AIR PATHWAY SCORE SHEET

Pathway Characteristics	
Do you suspect a release?	Yes _____ No <u>✓</u>
Distance to the nearest individual:	<u>200</u> feet

LIKELIHOOD OF RELEASE

	A Suspected Release (550)	B No Suspected Release (500) (b) (5)	
1. SUSPECTED RELEASE: If you suspect a release to air, assign a score of 550, and <u>use only column A</u> for this pathway.			1. Score only if data are available or if particulate emissions are noted and discussed in the PA report.
2. NO SUSPECTED RELEASE: If you do not suspect a release to air, assign a score of 500 and <u>use only column B</u> for this pathway.			
LR =		(b) (5)	

TARGETS

3. PRIMARY TARGET POPULATION: Determine the number of people subject to exposure from a release of hazardous substances through the air. _____ People x 10 =			3. Score only if column A is scored under likelihood of release. If scored, include population within 1/4 mile.								
4. SECONDARY TARGET POPULATION: Determine the number of people within the 4-mile target distance limit and assign the total population score from PA Table 8.		(b) (5)	4. If population is scored in no. 3 above, the secondary population should not include the individuals within 1/4 mile of the site.								
5. NEAREST INDIVIDUAL: If you have identified any Primary Targets for the air pathway, assign a score of 50; otherwise, assign the highest Nearest Individual score from PA Table 8.	(50, 20, 7, 2, 1, or 0)	(20, 7, 2, 1, or 0) (b) (5)									
6. PRIMARY SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (PA Table 5) and wetland acreage values (PA Table 9) for environments subject to exposure from air hazardous substances. <table border="1"><thead><tr><th>Sensitive Environment Type</th><th>Value</th></tr></thead><tbody><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></tbody></table>	Sensitive Environment Type	Value									6. Score only if column A is used in likelihood of release.
Sensitive Environment Type	Value										
7. SECONDARY SENSITIVE ENVIRONMENTS: Use PA Table 10 to determine the score for secondary sensitive environments.		1.									
8. RESOURCES: A score of 5 is assigned.	(5) 5	(5) 5									
(sum target values) T =		(b) (5)									

WASTE CHARACTERISTICS

9. A. If you have identified any Primary Targets for the air pathway, assign the waste characteristics score calculated, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	(100 or 32)	
B. If you have NOT identified any Primary Targets for the air pathway, assign the waste characteristics score calculated.		(b) (5)
WC =		(b) (5)
LR x T x WC as can	(subject to a maximum of 100)	(b) (5)

Prepared by: (b) (4) (b) (4)
 Reviewed and Approved by: _____
 Date: 4/14/91

TDD No: F3-9008-01
 Site Name: Linfield Industrial Park
 Date: 4/14/91

PA TABLE 8: VALUES FOR SECONDARY AIR TARGET POPULATIONS

Distance from Site	Actual Population	Nearest Individual (choose highest)	Population Within Distance Category												Population Value
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	
On site	0	20	(b) (5)												(b) (5)
> 0 to 1/4 mile	62	20													
> 1/4 to 1/2 mile	544	2													
> 1/2 to 1 mile	1208	1													
> 1 to 2 miles	11146	0													
> 2 to 3 miles	5343	0													
> 3 to 4 miles	15702	0													
Nearest Individual =		(b) (5)	(sum values) Score =												(b) (5)

PA TABLE 9: AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
Less than 1 acre	0
1 to 50 acres	25
Greater than 50 to 100 acres	75
Greater than 100 to 150 acres	125
Greater than 150 to 200 acres	175
Greater than 200 to 300 acres	250
Greater than 300 to 400 acres	350
Greater than 400 to 500 acres	450
Greater than 500 acres	500

PA TABLE 10: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY SECONDARY SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from PA Table 5 or 6)	Product
On site	0.10		
0 to 1/4 mile	0.025	(b) (5)	
1/4 to 1/2 mile	0.0054		

Total Environments Score = (sum of products)

(b) (5)

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Prepared by: (b) (4)
 Reviewed and Approved by: (b) (4)
 Date: 1/1/94

TDD No.: F3-900 8-01
 Site Name: Linde Industrial Park
 Date: 4/4/91 15

SITE SCORE CALCULATION

	S	S ²
GROUND WATER PATHWAY SCORE (S _{gw}):	(b) (5)	
SURFACE WATER PATHWAY SCORE (S _{sw}):		
SOIL EXPOSURE PATHWAY SCORE (S _{se}):		
AIR PATHWAY SCORE (S _a):		
SITE SCORE: $\sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_{se}^2 + S_a^2}{4}}$		(b) (5)

NOTES: The observed release to surface water is based on PADEP inspections in 1972, 1973, 1975, 1983, 1984, and 1985 which revealed unpermitted discharges of industrial wastewater to the Schuylkill River.